The Beautiful and Sublime in Mathematics

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—TRUTH ——BEAUTY———SUBLIME—— INFINITE—

I must admit that I was somewhat unsettled and apprehensive after I had prepared my talk for this Messiah conference. I did believe that my topic was a good one. I do think that the time has come to propose an aesthetics of mathematics which springs from our Christian belief. After all most mathematicians readily agree that mathematics is an art.! Yet the well known setting, which has often been used in constructing a theory of aesthetics for a wide variety of arts, posed a problem to me. I am referring to such arts as the visual arts, literature, rhetoric, music, sculpture, architecture, and even theology. This setting which uses the categories of the "beautiful' and the "sublime " goes back to the Greeks and Romans and more recently to the 18th century Irish philosopher, Edmund Burke. But the most influential contributor is the famous Immanuel Kant in his third book, *A Critique of Judgement*. But many of the things that Kant says about mathematics are somewhat disagreeable to me!

Yet the category of the *sublime* is intriguing since the term has come to hint at more than the merely 'large' but the 'overwhelming', the 'painful', the 'terrorizing,' the *infinite*. But mathematics is a science which deals in an essential way with the infinite. And then there is theology! Frankly, I just had a hint that there may be value, in this short talk, to use these categories as a first approximation.

I also proposed that we include in these considerations attention to the important concepts of *truth* and to the presence of the *infinite* in mathematics in our discussions. It may also be helpful to consider the work of David Hart in his book *The Beauty of the Infinite: The Aesthetics of Christian Belief* as valuable source for new and exciting ideas.

As a mere start to the topic, I judged that we will need some examples of the beautiful and the sublime in mathematics! As a beautiful theorem, I proposed Sharkovsky's Theorem and its proof and as an example of a sublime theorem, had I had enough time, I would have proposed the Classification of Finite Simple Groups Theorem which is still gaining attention under the direction of Daniel Gorenstein. I also listed several well known theorems which I invited my colleagues to classify for themselves.

I do have available the notes that I handed out before my slide presentation. These notes contain a list of theorems which you may want to classify using the Kant's rubric.